MOBILE BOUNDARY HYDRAULICS, PLLC

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William A. Thomas, P.E.

TECHNICAL QUALIFICATIONS AND CONTRIBUTIONS

1. **Education:** BCE - Civil Engineering, 1961, Georgia Institute of Technology. MSCE - Civil Engineering, 1966, Massachusetts Institute of Technology.

2. **Experience:** July 1961 to February 1969 - Hydraulic Design of the Low Head Lock, Dam and Channel structures for the Arkansas River Project, Little Rock District, Corps of Engineers; March 1969 to February 1973 - Hydraulics and Hydrology Research and Applications, The Hydrologic Engineering Center, Davis CA; March 1973 to February 1977 - Chief of Research Division, The Hydrologic Engineering Center, Davis CA; February 1977 to December 1993 - Senior Research Hydraulic Engineer, US Army Engineer Waterways Experiment Station (WES), Vicksburg MS, serving as researcher, team leader and senior consultant to staff Hydraulics Laboratory, WES. January 1994 to present - Consulting Engineer. Currently president of Mobile Boundary Hydraulics, PLLC.

   My career has centered around developing and applying computer programs to resolve specific problems in the field of river engineering - both fixed and mobile boundary systems. It includes Model Design, Development and Application; Data Compilation; Workshops, Training, and Technical Support for models; Expert Review and Peer Review. HEC-6 illustrates my activities. As a hydraulic engineer working on planning, engineering and operational studies for Corps of Engineers projects, I developed HEC-6 when sedimentation problems arose and there were no existing solution techniques. Some examples are the river and reservoir sedimentation studies for the Arkansas River Navigation Project; levee elevations along the delta deposits of Lower Granite Reservoir on the Snake and Clearwater Rivers; the maintenance dredging expected for the deposition of silts and clays in the Proposed Trinity River Navigation Project in Texas; sedimentation in the Corps of Engineers flood control projects along the Toutle and Cowlits Rivers, Washington, following the eruption of the Mt Saint Helens volcano; Atchafalaya Delta Growth prediction; channelization studies for the Red River navigation project; and numerous local flood protection projects on both urban and rural streams. Nonconnah Creek, Memphis, TN, is an example of an urban stream, and the Hotophia Creek and Tributaries of northern Mississippi is an example of a rural stream.

   The calculation of sedimentation processes in the proposed restoration of Middle Fork, Forked Deer River, in Western Tennessee illustrates the application of HEC-6T to stream restoration projects. HEC-6T was created to read a total water discharge and calculate the percentage of water which will flow in the cutoff channel and the percentage which will flow in the restored bend-way channel. HEC6T will then route the inflowing sediment discharge through the system of channels and calculate erosion and deposition at each cross section.

3. **Professional Registration:** Civil Engineer, Arkansas, 1967

4. Professional Societies:

a. Current membership: American Society of Civil Engineers, Member.
Sigma Xi, The Scientific Research Society.

b. Committees: Past Chairman of the Flood Control Committee, Past Chairman of the Research Committee, Past Chairman of the Sedimentation Committee, and Past Chairman of a Task Committee to Update and Expand ASCE Manual 54, Sedimentation Engineering - all are positions in the Hydraulics Division, ASCE.

5. Contribution of new techniques that advanced the state of the art:

Authored (LRD-1) "Multiple Backwater Profiles with Equations for Bridge and Weir Losses," Little Rock District, Corps of Engineers, 1964.

Authored (HEC-6) "Scour and Deposition in Rivers and Reservoirs," The Hydrologic Engineering Center, Davis CA, 1974.

Generalized the Unsteady Flow Program "Gradually Varied Unsteady Flow Profiles," Users Manual, Hydrologic Engineering Center, Davis, Calif., 1977.

Team Leader and Major Contributor to (TABS-2) "Open Channel Flow and Sedimentation," US Army Engineer Waterways Experiment Station, Vicksburg, MS, 1984.

Authored (SAM) "Hydraulic Design Package for Channels," US Army Engineer Waterways Experiment Station, Vicksburg, MS, 1993.

6. Professional Publications: Authored technical chapters in 3 books, numerous technical reports, numerous technical society proceedings, and journal papers.

Authored 8 instructional reports for using computer programs.

Task Committee leader to add a chapter on Computational Sedimentation modeling to the ASCE Manual 54, "Sedimentation Engineering."

7. Honors:
-Gallery of Distinguished Civilian Employees, Waterways Experiment Station. 1995
-ASCE Hans Albert Einstein Award. 1993
-Department of the Army Decoration for Meritorious Civilian Service. 1989
-ASCE Hydraulic Engineering Achievement Award. 1986
-Federal Laboratory Consortium Special Award for Excellence in Technology Transfer. 1986
-Commander and Director's Research and Development Achievement Award. 1984, 1991